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COMPUTER NEWS

University of Toronto
Computer Centre
10 King's College Road
TORONTO Ontario
M5S 1A1 Canada

416/978-2066

Janet Campbell, Editor

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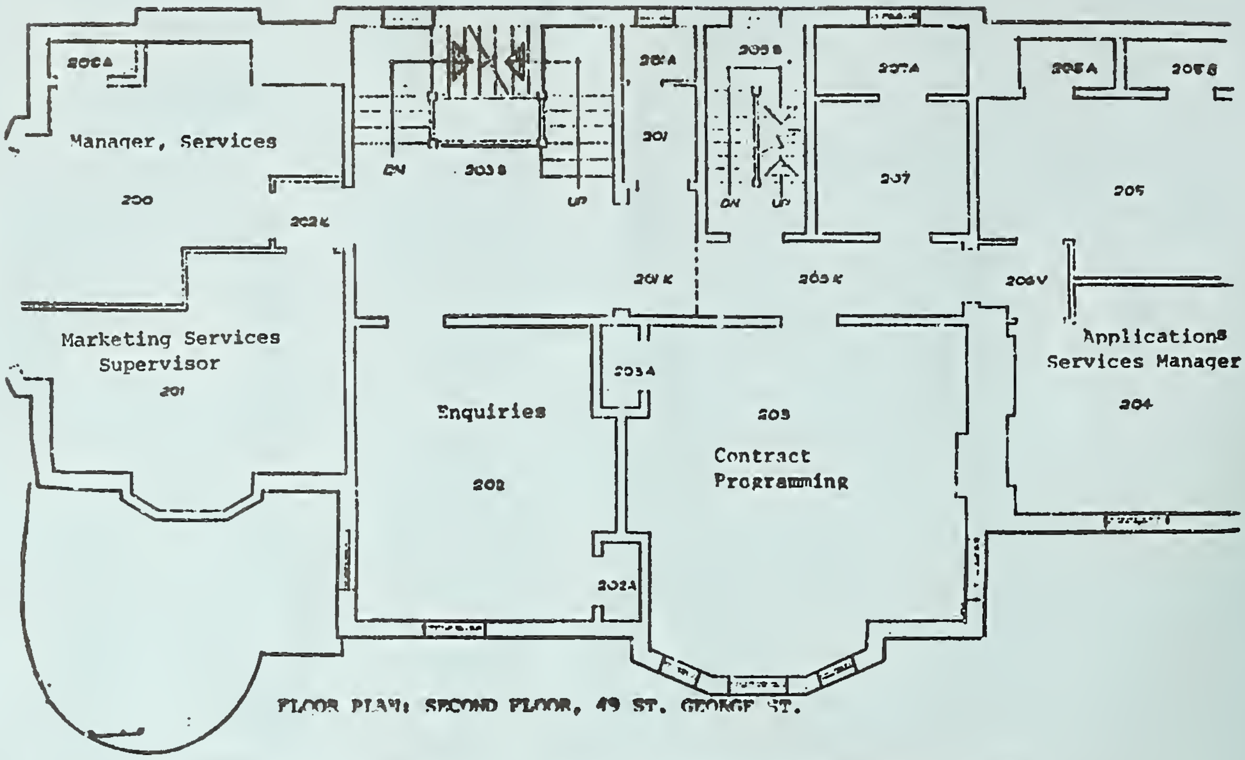
University of Toronto

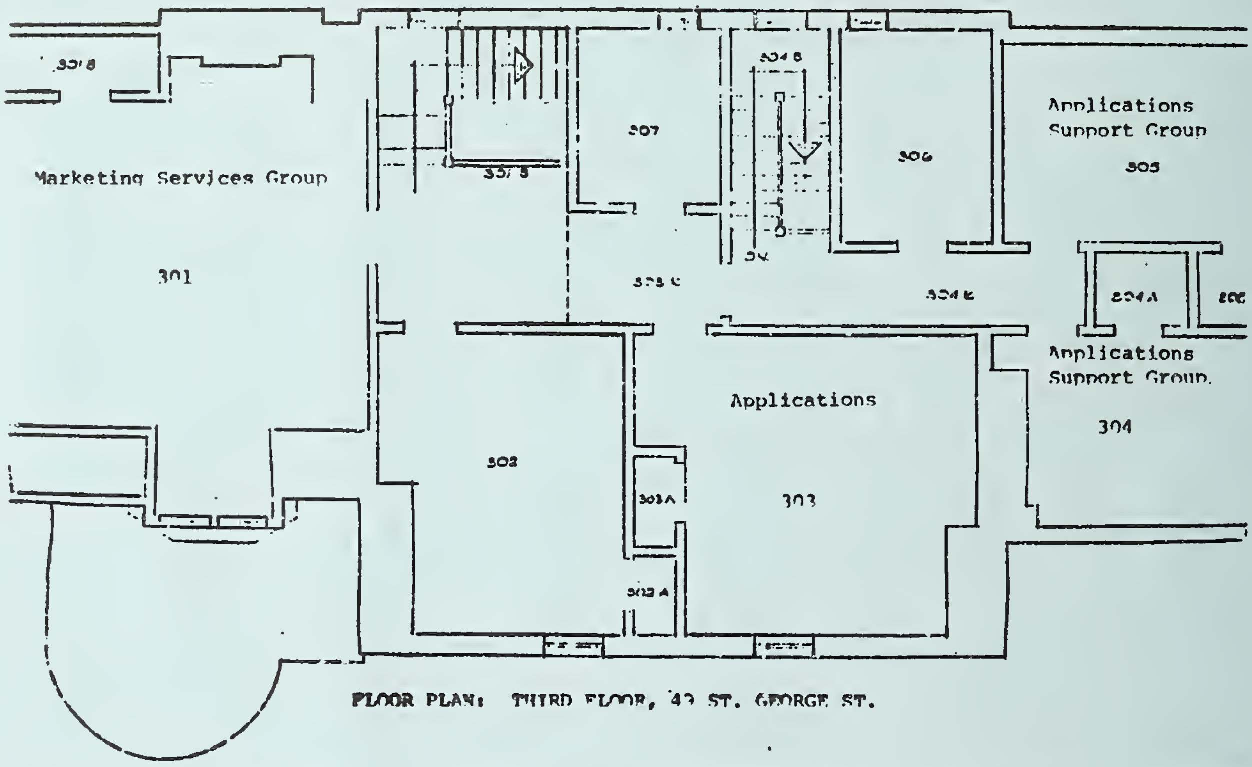
March 76

ISSN 0315-4661

No.134



FLOOR PLAN: SECOND FLOOR, 49 ST. GEORGE ST.



FLOOR PLAN: THIRD FLOOR, 49 ST. GEORGE ST.

COMPUTERNEWS is a monthly publication produced by the University of Toronto Computer Centre. Enquiries or contributions should be directed to the Editor, Janet Campbell or the Assistant Editors, Margo Harvie and Ruth Borenstein in the Sandford Fleming Building room SF125 or (416)-928-2066. Layout and ATS typing are provided by Lynne Jenkins. Subscription changes should be directed to the Information Office, Sandford Fleming Building room SF128 or (416)-928-4990.

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SANDFORD FLEMING TERMINAL

This month, the I/O facilities at the Sandford Fleming Terminal are featured on the April 1976 memo calendar.

The Sandford Fleming Terminal (SFT) is located in the Sandford Fleming Building, room 112, on the St. George campus of the University of Toronto. The terminal is attached to the main IBM S/370/165-II at UTCC. Approximately 50% of the jobs submitted to the S/370-165-II originate at SFT and about 70% of the overall unit record output is produced at this terminal.

The following peripheral equipment is available at SFT:

2 IBM 2501 card readers
1 IBM 2540 card reader/punch
3 IBM 1403 printers
1 GOULD 5000 electrostatic printer/plotter

At SFT, two of the printers and the two IBM 2501 card readers are operated by the users. The operator changes the paper on the two printers, aligns the forms and files any unclaimed computer output. The other printer is used for special forms mounts, for jobs containing over 15,000 lines of output and for jobs specifically routed to the printer (called LOCAL or UTC). For routing information, refer to USERBOOK Section 4 for jobs originating from the S/360-65 and 3.3BATCH for jobs originating from the S/370-165-II.

The GOULD electrostatic printer/plotter is used for producing graphic (plotted) output. This output can be separated by users at the terminal. Information about the GOULD plotter is available in the USERBOOK modules 3.8PLOTBASIC, 3.8PLOTINFO and 3.8PLOTBASIC.SUBEXT.

The staff at the terminal consists of a Computing Co-ordinator located in SF125, three full-time operators, part-time operators and part-time advisors. A display screen is located in the terminal and shows the backlog in the various queues. Users should first consult the display screen before asking the operator about the status of their job. Advisors are on duty in SF112, 10:00 - 17:00, Monday - Friday. Reference manuals are available in the area.

The terminal is open during the normal hours of operation of the S/370-165-II.

Mark Tapia

NEW TELEPHONE EXCHANGE REMINDER

Users are reminded that the telephone exchange for the University of Toronto has been changed from 928 to 978. Calls to old UTCC numbers will reach a recording advising of the changeover. Users should note that the new exchange is required to dial up ATS, TSO, APL etc.

Janet Campbell

MARKETING AND CONTRACT PROGRAMMING

Dave Scobie has recently been appointed Manager of UTCC Marketing and Contract Programming Services which will now be a separate division reporting to the Director's Office.

I know from my own experience that Dave will have the continued cooperation and support of all staff in his attempt to reach the goals set forth for this new division.

Dave Scobie may be contacted at 49 St. George Street, 978-6877.

Al Heyworth

SFT ADVISING HOURS

The summer advising hours for the Sandford Fleming Terminal will go into effect as follows on Monday, April 12, 1976:

10:00 - 17:00 Monday - Friday

Any users who would be interested in advising during the summer, should contact

Mark Tapia
Room 125
Sandford Fleming Labs.
10 King's College Rd.

Mark Tapia

FORTRAN STANDARD

A draft proposed American National Standard (dpANS) FORTRAN has been developed by the American National Standards Committee. Its purpose is to specify and establish a standard form and interpretation of FORTRAN programs so as to promote portability of FORTRAN programs.

A copy of the dpANS FORTRAN is available in the UTCC Technical Reference Centre, SF128. User comments are welcome and should be directed to Kin Fong at 49 St. George St. Room 204 (978-4924).

It is expected that changes to the draft proposed standard will be made, based on the comments received.

Please refer to the following article for further information on the new 'ANS FORTRAN'.

Kin Fong

PROPOSED NEW 'ANS FORTRAN' REACHES PUBLIC REVIEW STAGE

The Committee on Computers and Information Processing of the American National Standards Institute (ANSI), New York, has recently approved for public review and comment a draft of a proposed new FORTRAN specification. The document is a revision, with numerous extensions to the current ANSI X3.9-1966 FORTRAN standard. The draft has about 175 pages, plus several appendices.

cont'd...

PROPOSED 'ANS FORTRAN' Cont'd.

A few of the more notable extensions proposed are: character strings within apostrophes; character-type data; mixed mode arithmetic expressions; less restrictive DO parameters; lower dimension bound for an array need not be 1; direct access input/output; internal files, permitting memory-to-memory data conversions of the ENCODE/DECODE type. Formal language constructions such as IF-THEN-ELSE and DO-WHILE have not been included in this revision; however, well-structured programs can still be coded as before, of course, by using appropriate arrangements of elementary FORTRAN statements.

The public review period for the draft specification extends through June, 1976. Copies are expected to be available for review purposes on the campus as follows: on the overnight loan reserve shelf of the Engineering Library in the Galbraith building; in the UTCC Information Office in the Sandford Fleming building; in ACM's SIGPLAN March newsletter, at the Department of Computer Science Library in the McLennan Physical Laboratories building.

The Committee on Programming Languages of the Canadian Standards Association has this ANSI draft specification under intensive review. This committee's interest in a United States document is prompted by the facts that this committee has Canada's vote at the International Standards Organization (ISO) and the ANSI FORTRAN standard, if adopted, would likely be passed to ISO for adoption as an international standard. Interested persons are welcome to contact R. A. Collins, Department of Civil Engineering (978-3105), a member of the CSA committee, regarding comments, suggestions or for additional information.

R. A. Collins

SHARE XLVI

Session Synopses

The SHARE sessions that will be discussed in this article are largely within the domain of data centre management and are of immediate interest to UTCC. One session, presented by a California Municipal Utility, was dedicated to the description of an automatic scheduling system run by the Municipal Utility. In addition to scheduling production work through their system, this particular system automatically provides JCL prescan and procedure construction functions and preinitiation volume requests for the operator as well as tape library management. The results were impressive: 0.1% reruns on production jobs, zero JCL errors on production jobs, zero accidental tape scratches or releases and no increase in operational personnel in 10 years.

cont'd...

SHARE XLVI Cont'd.

Another topic that was of interest concerned contingency planning in the event of a major outage. It included a case study of a fire that destroyed a data centre and another case study of a major relocation of a data centre in California. This relocation involved the move of two 168's some 50 miles away, over two weekends with no service interruptions.

In the area of hardware, two sessions were presented on the 3800 printing subsystem and the 3850 Mass Storage Subsystem. Later, several UTCC staff members toured an IBM data centre that had both the 3800 and 3850 installed and operational as well as the Amdahl headquarters where the assembly and operation of an Amdahl computer was viewed.

Other sessions attended included a VS1R4/HASP retrofit session and a VSPC overview session. Neither of these produced anything new of direct signifigance to immediate UTCC plans.

As a speaker in a support services division session that dealt with areas of operation having remote facilities, I spoke of the operation and staffing of UTCC's remote terminal locations.

One of the other session speakers, it was learned, successfully runs remote stations across North America and overseas using HASP and virtually no voice communication with the remote sites. Some of the modifications made for service aids to users are applicable in concept to UTCC (for example, software job chaining and automatic releasing under user control). These are being studied to see of the ideas could be applied here.

In summary, SHARE XLI proved to be very informative. This particular SHARE seemed to have increased presentations in the hardware, telecommunications and management spheres in comparison to previous SHARES. Anyone wishing to discuss the SHARE sessions described in this article is welcome to contact Derry Cox at 978-7092.

Derry Cox

THE 7TH ONTARIO UNIVERSITIES COMPUTING CONFERENCE

The 7th Ontario Universities Computing Conference will be held at the University of Waterloo from June 2 to June 4, 1976. The theme of this year's conference is 'Applications and Objectives', and in exploring this theme, the sessions will examine the impact of changing conditions of computing to meet the objectives of the academic institution. The presentations and discussions will address the theme in terms of:

-- college and university objectives

-- current computing applications and their evolution to date to meet these objectives

-- plans and desires to extend these applications to better service the functioning or objectives of the institution

cont'd...

COMPUTING CONFERENCE Cont'd,

-- current limitations in the facilities and services, and how they must be resolved to allow for the continued evolution of these applications and the development of future applications

The topics of the day-time sessions are:

1. The Management of Decentralized Computing Systems.
2. Applications of Minicomputers at the University of Waterloo.
3. On-line Administrative Computing.
4. Computer-Aided Instruction.
5. Co-operative Endeavours.
6. Interactive Computing as a Teaching Aid.
7. Micro, Mini, and Midi Computers in the University.
8. How Can You Do It -- Today and Tomorrow.

Demonstrations, special-interest presentations, and discussion sessions are planned as part of the evening activities.

These topics should have a wide range of appeal to college and university instructors, researchers, administrators, computing centre staff, and students.

If you would like a Preliminary Agenda and Registration Form, please contact:

Roger Watt
Program Chairman
OUCC
Computing Centre
University of Waterloo
N2L 3G1

519-885-1211 ext. 2183

DECUS SYMPOSIUM

Hyannisport, Cape Cod
April 6 - 9, 1976
Chairman: Michael J. Merchant
University of Arizona

APL Workshop -- April 7, 1976

Theme: APL is a relatively new language to DEC-10 users. This workshop will draw on the knowledge of several veteran APL users who will share their experiences in the application of APL to real problems. A presentation will also be made on the new APL interpreter.

Phyllis Kent, of Syracuse University, will discuss problems and methods of teaching APL. She will also describe a few applications of APL in a university environment.

Ernst Goetze, of the University of Toronto, will speak on the DATATALK service. This is a unique user service in which staff programmers use APL as a tool to answer questions and solve problems for the general university community.

cont'd...

DECUS SYMPOSIUM Cont'd.

Bill Koteff and Roger Lipsett, of DEC, will present an overview of DEC's new APLSV interpreter.

The session will conclude with a period for general discussion and recommendations to DEC.

PERSONNEL CHANGES

Leaving the Centre this month are DiAnne Madill and Adam Love. DiAnne may be doing some travelling and Adam is going to be working for Canadian Imperial Bank of Commerce. We'll miss you both but as always, our best of luck to you.

Norman Riettie has transferred from Operations to Business Information Systems to work as Production Co-ordinator and Wendy Kaye will be leaving the Information Office to work as Systems Secretary for Rein Mikkor.

Replacing DiAnne as secretary in the Services area is Vikki Coulson. Another new employee is Henri Arnaud who will be working as a Programmer in our Systems area. We hope you will enjoy working with us, Vikki and Henri.

Some physical changes have also taken place during the last month. Administration has moved from room SF137 to SF143 and Publications has in turn moved to SF137 from SF125.

Mark Tapia will still be in room SF125 but is joined now by Bob Radcliffe whose office was previously located on the second floor.

Rein Mikkor is moving across the hall from his old office to room SF115.

That's all for this month but you'll be hearing from me again.

June Bridges

RECENT ACQUISITIONS IN THE DEPARTMENT OF COMPUTER SCIENCE LIBRARY

Association for Computing Machinery.
Pacific 75 - Regional Conference. San Francisco, Apr. 1975.
Data: Its Use, Organization and Management.
New York, ACM, 1975.

Berman, Gerald, ed.
Forward Citations in Graph Theory.
Waterloo, Ont., University, 1975.

Bernacchi, Richard L. and Larsen, G.H.
Data Processing Contracts and the Law.
Boston, Little, Brown and Co., 1974.

Carter, Ciel.
Guide to Reference Sources in the Computer Sciences.
New York, Macmillan Information, 1974.

Gschwind, Hans W. and McCluskey, E.J.
Design of Digital Computers: An Introduction.
New York, Springer-Verlag, 1975.

IFIP Working Conference on Data Base Management, Cargese, Corsica, 1974.
Data Base Management, ed. by J.W. Klimbie and K.L. Koffeman.
Amsterdam, North-Holland, 1974.

cont'd...

RECENT ACQUISITIONS Cont'd.

International Conference on Very Large
Data Bases, Framingham, Mass.,
Sept. 1975.
Very Large Data Bases, ed. by
D.S. Kerr.
New York, ACM, 1975.

Kieburtz, Richard B.
Structured Programming and Problem
Solving with ALGOL W.
Englewood Cliffs, N.J., Prentice-Hall,
1975.

Kleijnen, Jacobus Petrus Catharinus.
Statistical Techniques in
Simulation. 2 pts.
New York, Marcel Dekker, 1974.

Mowshowitz, Abbe.
The Conquest of Will: Information
Processing in Human Affairs.
Reading, Mass., Addison-Wesley, 1976.

Peatman, John B.
The Design of Digital Systems.
New York, McGraw-Hill, 1972.

Shampine, Lawrence F. and Gordon,
M.K.
Computer Solution of Ordinary
Differential Equations; the
Initial Value Problem.
San Francisco, W.H. Freeman, 1975.

Weizenbaum, Joseph.
Computer Power and Human Reason:
From Judgement to Calculation.
San Francisco, W.H. Freeman, 1976.

Wulf, William, et al.
The Design of an Optimizing
Compiler,
New York, American Elsevier, 1975.

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DO YOU KNOW THESE FACTS ABOUT U.T.C.C.'s ADMINISTRATIVE TERMINAL SYSTEM?

- Eliminates clutter of record keeping
- Eliminates necessity of manual records
- Eliminates problem of lost records
- Allows for unlimited 'original' copies
- Provides better quality than photocopying
- Easy to learn
- Rewarding to use
- Flexible in its applications

. . . and much more!! . . .

INTERESTED? CALL 978-6877

We want to talk to YOU!

NEW ADVISING HOURS AT ASUT AND AST

Effective April 12, 1976 the advising hours for ASUT and AST will be:

Monday-Friday 9:00 a.m. to 5:00 p.m.

No advising service Saturdays and Sundays

The hours of operation for both terminals will remain the same.

Dave Tritchler

ATTENTION PAPER TAPE AND PLOTTER USERS

Plotter and paper tape users are advised that effective April 15, 1976 the old datasets listed below will be deleted. For some time, these datasets have existed in duplicate on the system; users still referencing the old dataset names should change their JCL references to the new dataset names.

Old Name
IC.CALCOMP.LMODS
New Name
CALCOMP.USER.LMODS

Old Name
IC.CALCOMP.EXT.LMODS
New Name
PLOTTER.EXT.LMODS

Old Name
IC.UTIL(PTMOUNT)
New Name
PTAPE.LMODS(PTMOUNT)

Old Name
IC.USG.LMODS(PAPER)
New Name
PTAPE.LMODS(PAPER)

Any questions regarding this changeover should be directed to the Computing Co-ordinators or the advisors in SF117, phone 978-8599.

Bob Radcliffe

TSO TOPICS

TSO EDIT Module Revised

A new version of the USERBOOK module 3.3TSO.EDIT has been prepared and is now available at the Information Office, SF128. Current subscribers will be mailed a copy of the revised module which contains approximately forty minor revisions, several of which could prevent serious problems when using the TSO EDITor. Users who encounter any problems or errors with the new version should contact Ian Darwin, 49 St. George, room 303, 978-7318.

More on Job Output

UTCC has recently made available an extended TSO batch job STATUS command called 'STE' which provides infoımation about output from jobs which have finished executing. Prior to this, short jobs often finished printing before the STE command could be entered, resulting in a 'JOB NOT FOUND' message. To alleviate this problem, UTCC has made available a 'hold' queue for TSO jobs, and a means for rerouting the output.

cont'd...

TSO TOPICS Cont'd.

Thus, the job should contain a

```
/*ROUTE  PRINT TSO
```

control statement. When the job finishes execution, it will show as 'WAITING PRINT 100' indicating it is in the TSO queue. To check the output, enter the 'STE jobname' command. The output should then be routed to a printer with the $R command. Jobs left in the queue for excessive time may be cancelled. For example:

```
JOB TS12345X END EXECUTION
st
JOB39TS12345X AWAITING PRINT 100 PRIO 6   5
READY
ste ts12345X
JOB 39 TS12345X JONES AWAITING PRINT
LINES=12133 CARDS=767 STEPS RUN=3
READY
$r x local
READY
```

For more information, enter HELP RJE, then HELP for the specific command. Problems should be referred to Ian Darwin.

Ian Darwin

CENTS -- AIDII CROSSTABULATION

Preventive Medicine and Biostatistics has recently contacted UTCC re the possible purchase of a software package, CENTS-AIDII, a high speed crosstabulation system that claims to save researchers up to 90% of current computer costs. The documentation sent to UTCC includes a cost comparison with SPSS version 6 crosstabulation on various data files. Overall, the statistics quoted indicate substantial savings over SPSS crosstabulation (they point out that SPSS is designed to do other than just crosstabulation).

The Computer Centre is interested in the response from the user community both in terms of interest in and financial committment to the purchase of this package. The cost for outright purchase is $500. This includes a 1 year maintenance contract. In addition, a workshop on the package is being held April 28, 1976 in Montreal as part of the annual meeting of the Population Association of America (PAA) (cost is $50 for registration).

Users who are interested in this system may contact Len Prepas at 978-6878.

Len Prepas

JCL OUTPUT LISTING MADE CLEARER

As of April 12, 1976, the substitution JCL message (IEF653I) will be replaced with && in column 1 and 2, and the replacement text will be aligned at column 16. The purpose of this modification is to make the JCL listing with symbolic parameters more clear.

In the original IBM's JCL output listing with MSGLEVEL=1 specified, every line in a catalogued procedure that contains a symbolic parameter, is followed with a line starting with: IEF653I

cont'd...

JCL OUTPUT LISTING Cont'd.

SUBSTITUTION JCL ...... Following the modification, all these added lines will start with &&, and only true JCL errors will be followed with a line, starting with a message number and a message. As a result, it will be much easier to find them.

The following example shows the JCL substitution in a JCL output listing after the modification:

```
            col 16
XXTAPE    DD    &TAPE,UNIT=&UNIT,
&&              DUMMY,UNIT=3400-3,
XX              VOL=SER=&FROM,
&&              VOL=SER=111111,
XX              DISP=OLD
```

In the original IBM's listing the second line (for example) was:

```
IEF653I SUBSTITUTION JCL - DUMMY,UNIT=3400-3,
```

Giora Leb

COCOA AVAILABLE

The COCOA concordance program has been installed and is now available at UTCC. The manual may be obtained from the Information Office, SF128, as well as a listing of sample JCL. USERBOOK will be updated shortly to reflect this package.

Herb Kugel

GPJS -- SOFTWARE USAGE STATISTICS

The following chart summarizes the software usage per classified procedure and program names for the General Purpose Job Stream -- February 2, 1976 - March 3, 1976.

SOFTWARE	USES (#JOBSTEPS)	(%)
ALGOL	35	0
APLSV	21	0
ASM	612	1
COBOL	296	0
CSMP	7	0
DATATEXT	128	0
DBUGUTIL	19	0
DISKUTIL	2,221	6
DSUTIL	5,866	17
DYNAMO	114	0
FORTRAN	9,801	29
GPSS	78	0
GRAPHICS	2,233	6
JCLUTIL	197	0
LISP	10	0
MARKEXAM	37	0
MARKIV	577	1
MPS/MPSX	165	0
DSUTIL	334	0
PAPERTAP	112	0
PL/I	3,237	9
RPG	84	0
SAS	62	0
SERVAID	341	1
SNOBOL	943	2
SORTMERG	1,374	4
SPEAKEZ	79	0
SPSS	2,623	7
SSP/BMDD	676	2
TAPEUTIL	557	1
TIPRS	17	0
TSO	67	0
XFR	493	1
TOTAL	33,416	

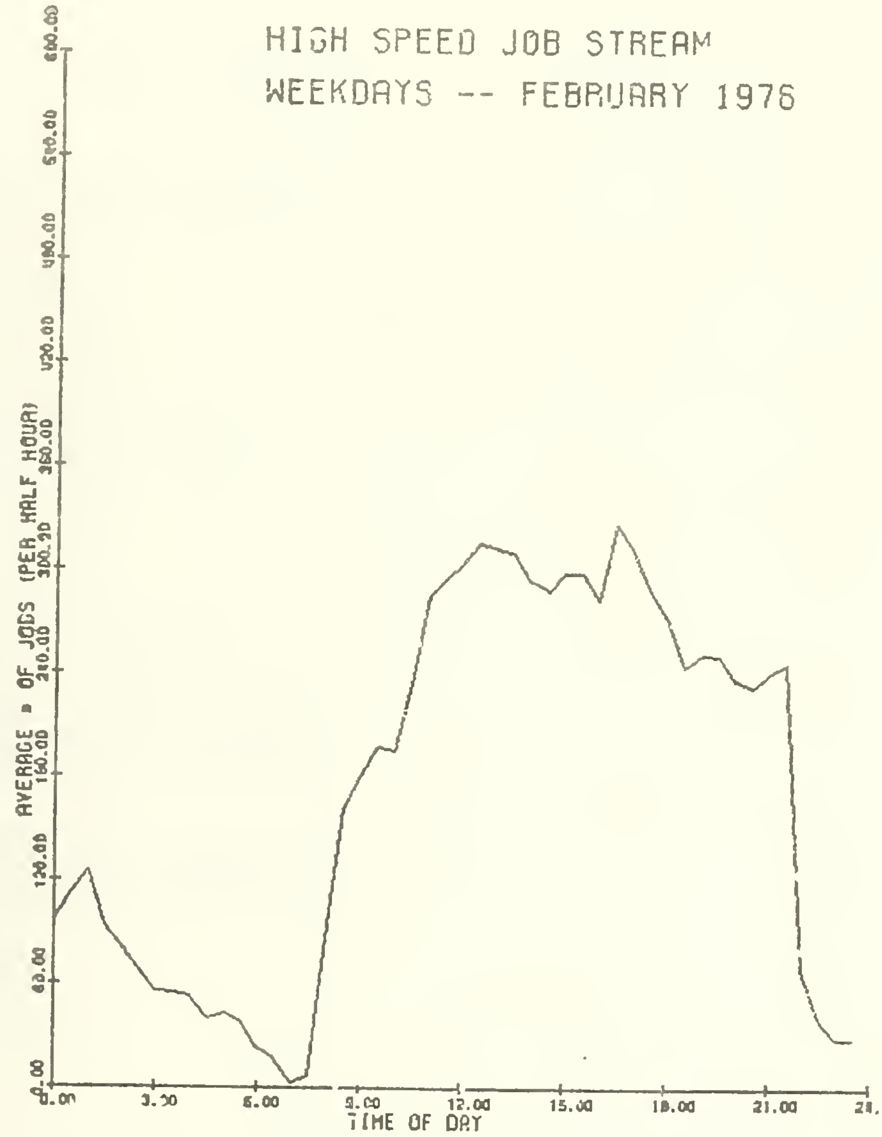
Kin Fong

HSJS MONTHLY STATISTICS

During the month of February 1976, 197,835 jobs were processed compared with 192,556 for the previous year, an increase of 2.7%.

The following charts summarize the HSJS activity for the month of February. The graph represents the average number of jobs processed during each half hour period of the day.

Mark Tapia



RESOURCE USAGE BY PROCESSOR

			TOTAL PER PROCESSOR			AVERAGE PER USE		
PROCESSOR	#USES	%TOTAL	CPU (MIN)	#CARDS READ	#LINES PRINTED	CPU (MIN)	#CARDS READ	#LINES PRINTED
WATFIV	96817	(49)	1029.49	9549038	13363796	0.008	96	136
PL/C	53205	(27)	1240.72	12446599	19886767	0.020	232	372
ALGOLW	15712	(8)	149.00	3418961	4601193	0.008	216	292
OTHER*	13829	(7)	209.41	1115973	2260825	0.012	80	160
UTILITY	9407	(5)	23.81	724114	1199271	0.000	76	124
ASMG	4364	(2)	50.79	362807	981337	0.008	80	200
WATBOL	2689	(1)	37.07	599186	776472	0.012	220	288
SPITBOL	844	(0)	5.96	92572	124751	0.004	96	144
LISP	569	(0)	3.57	23089	71601	0.004	40	124
PLUTO	204	(0)	2.85	27334	35209	0.012	132	172
SIMON	148	(0)	0.53	4256	7567	0.000	28	48
ASSIST	47	(0)	0.12	752	1950	0.000	16	40
TOTAL	197835		2753.32	28354682	43216739	0.014	143	218

* SP/K, SPSS and SNAP

S/370-165-II RELIABILITY

The reliability statistics for February indicate an uptime percentage of 98.9 while the average number of unscheduled IPL's per day reached 0.97. The number of scheduled hours of production for February totalled 472.

MONTHLY COMPARATIVE FIGURES

MONTH	% UPTIME	UNSCHED. IPLs/DAY
Jan/75	95.7	2.77
Feb/75	96.0	1.14
Mar/75	96.7	1.10
Apr/75	98.6	0.70
May/75	99.4	0.60
Jun/75	97.4	0.79
Jul/75	95.2	1.23
Aug/75	97.6	0.83
Sep/75	99.1	0.87
Oct/75	97.2	1.13
Nov/75	95.8	1.63
Dec/75	99.4	0.48
Jan/76	99.1	0.43
Feb/76	98.9	0.97

The percentage breakdown of total system downtime for February was:

Hardware: 149 minutes (49.2%)
Software: 117 minutes (38.6%)
Other : 37 minutes (12.2%)

The major events contributing to these downtime totals were as follows:

February 4 - 25 minutes down - 5 IPLs

- All time resulted from a user job causing the system to go into a 100% Supervisor Loop.

February 12 - 40 minutes down - 2 IPLs

- All time attributed to ITEL corrective maintenance on 7330 control unit attached to channel 3. The equipment checks experienced could not be reproduced on diagnostics.

February 20 - 25 minutes down - 3 IPLs

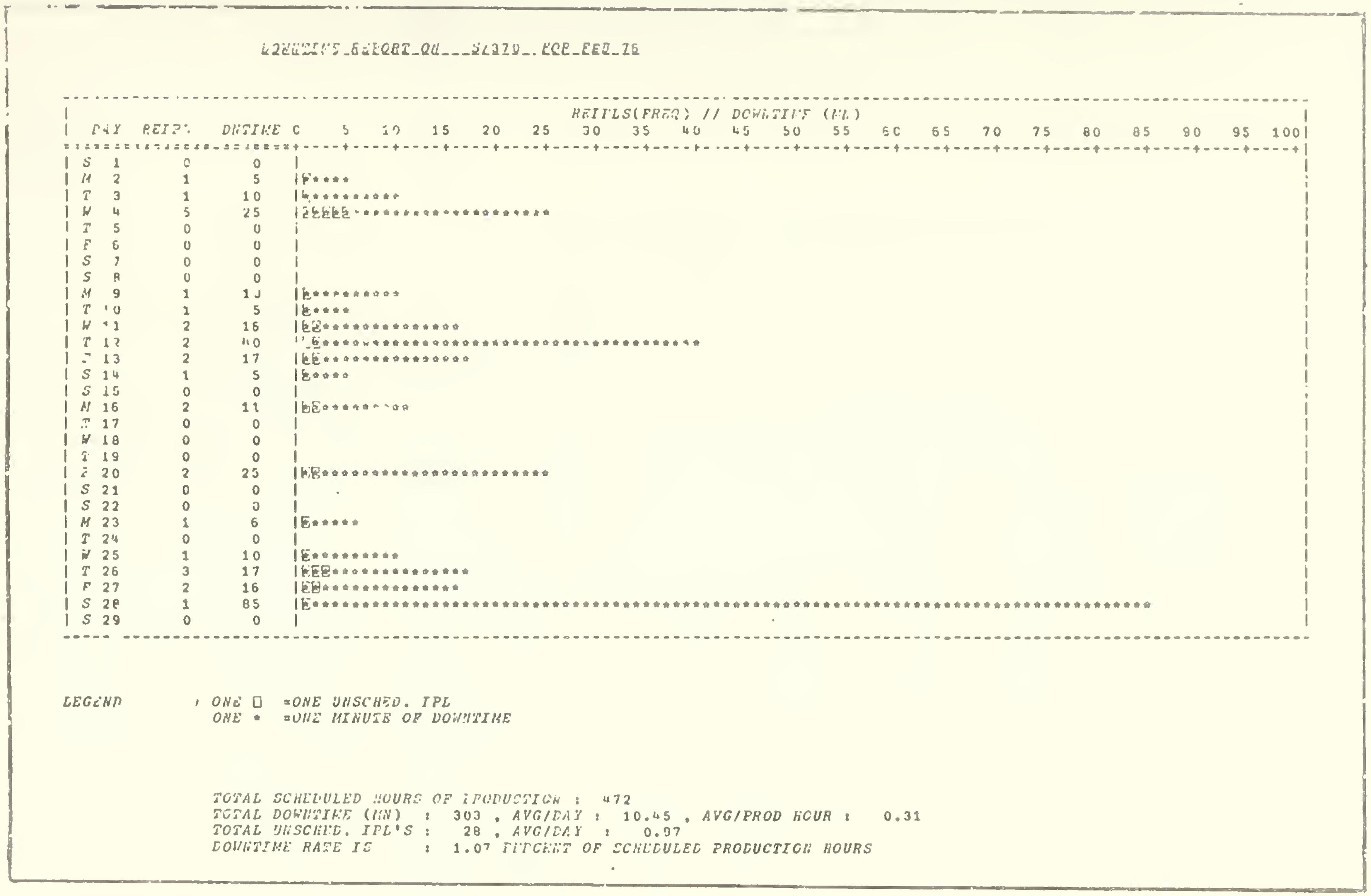
- All time caused by a user job looping on the Gould plotter.

February 28 - 85 minutes down - 1 IPL

a. 80 minutes attributed to partial power up on system. IBM traced problem to a disconnected E.P.O. (Emergency Power Off) cable on 2701.

b. 5 minutes charged to an "AOA WAIT" on channel "0".

Paul Scarborough



```
                    DOWNTIME_REPORT_ON___S/370__FOR_FEB_76

------------------------------------------------------------------------------------------------------------------------------
|                                                   REIPLS(FREQ) // DOWNTIME (MN)                                             |
| DAY   REIPL   DNTIME C    5   10   15   20   25   30   35   40   45   50   55   60   65   70   75   80   85   90   95  100|
=======================+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+----+|
| S  1       0       0 |                                                                                                    |
| M  2       1       5 |□****                                                                                               |
| T  3       1      10 |□*********                                                                                          |
| W  4       5      25 |□□□□□********************                                                                           |
| T  5       0       0 |                                                                                                    |
| F  6       0       0 |                                                                                                    |
| S  7       0       0 |                                                                                                    |
| S  8       0       0 |                                                                                                    |
| M  9       1      10 |□*********                                                                                          |
| T 10       1       5 |□****                                                                                               |
| W 11       2      16 |□□**************                                                                                    |
| T 12       2      40 |□□**************************************                                                            |
| F 13       2      17 |□□***************                                                                                   |
| S 14       1       5 |□****                                                                                               |
| S 15       0       0 |                                                                                                    |
| M 16       2      11 |□□*********                                                                                         |
| T 17       0       0 |                                                                                                    |
| W 18       0       0 |                                                                                                    |
| T 19       0       0 |                                                                                                    |
| F 20       2      25 |□□***********************                                                                           |
| S 21       0       0 |                                                                                                    |
| S 22       0       0 |                                                                                                    |
| M 23       1       6 |□*****                                                                                              |
| T 24       0       0 |                                                                                                    |
| W 25       1      10 |□*********                                                                                          |
| T 26       3      17 |□□□**************                                                                                   |
| F 27       2      16 |□□**************                                                                                    |
| S 28       1      85 |□************************************************************************************               |
| S 29       0       0 |                                                                                                    |
------------------------------------------------------------------------------------------------------------------------------


LEGEND        , ONE □  =ONE UNSCHED. IPL
                ONE *  =ONE MINUTE OF DOWNTIME


                TOTAL SCHEDULED HOURS OF PRODUCTION :  472
                TOTAL DOWNTIME (MN)   :  303 , AVG/DAY :  10.45 , AVG/PROD HOUR :   0.31
                TOTAL UNSCHED. IPL'S :   28 , AVG/DAY   :   0.97
                DOWNTIME RATE IS      :  1.07 PERCENT OF SCHEDULED PRODUCTION HOURS
```

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ATTENTION S/360 USERS

As of March 15, 1976 the new schedule for ATS and APL on the S/360-65 is:

Monday - Friday 0:00 to 3:00
8:00 to 24:00

Saturday, Sunday 9:00 to 18:00

Kam Jain

INTERACTIVE SYSTEMS RELIABILITY

The uptimes achieved for the month of February for APL and ATS were 99.24% and 99.28% of scheduled operation, respectively. The number of scheduled hours of operation for the month of February totalled 452, while the number of unscheduled IPL's per day was 0.24. In addition to the scheduled time, Interactive Services were available for approximately 134 hours of unattended weekend operation. The percentage breakdown of total system downtime for February was: HARDWARE - 102 minutes (70.84%); SOFTWARE - 12 mins (8.33%); OTHER - 30 mins (20.83%). Seven unscheduled IPL's were required as a result of the failures. The major events contributing to downtime were as follows:

Feb. 12: An intermittant hardware problem in the 3705 communications controller caused dial-up lines to cease answering. After scoping all four oscillators a bad card in the 300 baud time clock was isolated and eventually replaced.

Feb. 13: A total of 56 minutes of downtime and 2 IPL's were attributed to two separate problems. The initial problem was caused by a power fluctuation and the operator was unable to restore power due to faulty circuit breakers in one of the disk control units. Later, CPU entered a solid system state and appeared to be looping in core, including LCS. Customer Engineers adjusted the voltage and checked for loose wires in the CPU, but the problem seemed to have corrected itself.

The following table summarizes the time lost out of scheduled hours of production due to system failures for each of the systems.

Kam Jain

DATE	DOWNTIME (mins)		REASON
	APL	ATS	
Tue Feb 3	12	12	*Out of SQA-E04 abend (SOFTWARE)
Thu Feb 12	111	110	***Defective card in 3705 (HARDWARE)
Fri Feb 13	30	32	*Power fluctuation (OTHER)
	26	24	*CPU entered solid system (HARDWARE)
Tue Feb 26	17	-	Missing address marker during file restore (HARDWARE)
Fri Feb 27	11	11	*1052 console locked out (HARDWARE)
TOTAL	207	196	* IPL REQUIRED

System failures February 1 - 29, 1976

NEW APLSV-GOULD PRINTER/PLOTTER INTERFACE

DATATALK has recently set up the new APLSV workspace 20 GOULDPLOT to provide APL and FORTRAN programmers with an easy-to-use interface to the GOULD electrostatic printer/plotter that is powerful enough to satisfy most of the ordinary graphics needs of scientists, engineers and other researchers at the University of Toronto.

The details are in the variables, ABSTRACT and DESCRIBE in the APLSV workspace 20 GOULDPLOT and also in pages 6.40 and 6.41 of the SHARP APL Catalog facility (COMPUTERNEWS, JANUARY 1976).

Moreover, the conventions for the GOULD program created and submitted for batch execution by the function GPLOT in the workspace 20 GOULDPLOT, are exactly the same as explained in the USERBOOK modules 3.8PLOTBASIC and 3.8PLOTBASIC.SUBEXT.

For the APL user, the syntax of the main function, GPLOT, is essentially the same as the function PLOT in 1 PLOTFORMAT.

Thus, `)LOAD 20 GOULDPLOT` and type

```
JOBNAME ← (LX,HY) GPLOT ARRAY
```

where,

(LX,HY):	LX	is the length of the X-axis in inches. The default minimum is 1 inch.
	HY	is the height of the Y-axis in inches. The maximum setting is 9.5 inches.
ARRAY:		an array of data points that are to be plotted. The first column gives the abscissa values; all other columns give the ordinates.

The function GPLOT then prompts for:

S/370 SAC:	This is the S/370 Service Access Code. Format is NNNNAAA(A)
PLOT NAME:	The name that is to be used as both the jobname for the background job submitted by GPLOT and also the name under which plot output will be filed in the Sandford Fleming I/O room.

cont'd...

NEW APLSV-GOULD PRINTER/PLOTTER INTERFACE Cont'd.

X and Y-AXIS TITLES: Only the first 45 characters of each is used.

LINE TYPE: An integer $I < 0$ specifies only points will be drawn, and only every Ith point will be marked on the graph.
$I = 0$, a line will be drawn connecting the points being plotted (default)
$I > 0$, a line will be drawn and also every Ith point will be marked.

FORM TYPE:
-1 the plot is drawn as white lines on a black background
0 no background
1 a grid of dotted lines spaced 1/2 inch (default)
2 a grid of dotted lines spaced every 1/4 inch

LINE THICKNESS: Line width control according to the code
-2 triple thick
-1 double thick (default)
0 normal
1 dotted
$2 \leq N \leq 15$ every N+1th dot will be drawn
16 a single dot will be set at the co-ordinate point (X,Y)

Programming advice and assistance in accessing this and any other SHARP APL or APLSV facility is available from the University of Toronto DATATALK, 978-6710, 10 a.m. - 10 p.m. every weekday.

DATATALK DIALOGUES: DATATALK CALCULATES CORRELATION COEFFICIENTS

UTCC has been experiencing a run on correlation coefficients during the past two months.

There is nothing simpler than a call to DATATALK to resolve in just a few minutes what might be hours of hand calculation.

cont'd...

DATATALK DIALOGUES Cont'd.

How do we do it?

If we have your data, say a list of X and Y values, stored temporarily in our '*CONTINUE*' workspace, we might

```
        )LOAD 2 STP2
        )COPY CONTINUE X Y
```

and calculate

```
        RX←X-MX←(+/ X)÷ρX     (CALCULATE THE MEAN OF X AND THE
        RY←Y-MY←(+/Y)÷ρY      VECTOR OF DEVIATIONS)
```

and then, in several steps, because it's easier and allows less room for typing errors,

```
        R←RX+.×RY
        R←R÷(RX+.×RX)*0.5
```

and finally

```
        R←R÷(RY+.×RY)*0.5

        R
0.79655
```

Incidentally, the Fisher Z-statistic for R is just

```
        0.5×⍟(1+R)÷1-R
1.0891
```

Actually, in order to calculate a simple correlation coefficent, what we might do is assemble your data into an array D

```
        R←CM D←X,[1.5]Y
```

and calculate an array of simple correlation coefficents by using the function '*CM*'

```
        R
        1                 0.79655
        0.79655           1
```

DATATALK DIALOGUES Cont'd.

As is often the case, there may be a control variable Z involved too.

Thus,

```
      R←CM D←D,Z
```

will return A 3x3 array of simple correlation coefficients in R

```
      R
1          0.79655   0.80427
0.79655    1         0.58191
0.80427    0.58191   1
```

And, replacing unit entries in R by zero to avoid unnecessary domain errors, the array of Fisher Z-statistics for each of the simple correlation coefficients is

```
       0.5×⍟(1+S)÷1-S←R×1≠R
0          1.0891    1.1106
1.0891     0         0.66535
1.1106     0.66535   0
```

and, if you are really interested in the simple correlation coefficient between X and Y with the linear effect of Z removed,

```
      R123←1 2 3 CORR R

      R123
0.6798
```

'Correlation' is often a euphemism for 'linear least squares fit'.

A good correlation coefficient says less than a linear equation and is therefore much easier to defend, but, if you like, we can calculate a simple regression line and, along the way, return the entire analysis of variance table that may help to support the assertions of the linear model.

Thus,

```
      ρT←X SR Y
 5 3

      T
52            8.124        0
42            5.4772       0
14.074        0            0
 0.53704      0.14411      3.7266
 3.5122       0.79655      0.6345
```

DATATALK DIALOGUES

From the table, we see that the mean value of X is 52 with a standard deviation of 8.124 and that the mean value of Y is 42 with a standard deviation of 5.4772.

Also, the correlation coefficient is, as was calculated, 0.79655, with R*2 equal to 0.6345, and that the best line is

$$Y=14.074 + 0.53704\ X$$

The table contains further information but this completes the treatment of this problem.

More information on the SHARP APL programs that were used here can be obtained from the catalog system by

```
)LOAD 1 WSINDEX
```

and getting pages 10.3 and 10.5 (get 10 3 and get 10 5).

Ernest Goetze

UTCC COMPUTER EQUIPMENT

SYSTEM/370 MODEL 165-II

- located in SF103/105/112
- provides General Purpose Job Stream, High Speed Job Stream, APL, SV and TSO services
- 3072K bytes of memory
- 1 drum (2301)
- 13 disk drives (3330)
- 8 disk drives (2314)
- 7 magnetic tape drives (5 9-track and 2 7-track)
- 6 display consoles
- 6 printers
- 5 card readers
- 1 card punch
- 8 remote batch terminals
- 1 paper tape reader
- Calcomp plotters (11" and 30")
- Gould plotter (11")
- OS/MVT with HASP

SYSTEM/360 MODEL 65

- located in McLennan Physical Laboratories
- provides APL and ATS services
- 1536K bytes of core
- 24 disk drives (2314)
- 3 9-track magnetic tape drives
- 1 printer
- 1 card reader
- 1 card punch
- 140 typewriter terminals
- OS/MVT with APL and ATS

7094 II

- located in Room 1203 Burton Tower
- 32K words of core
- 1 disk
- 8 magnetic tape drives
- input/output via a 1401 computer

COMPUTER RESEARCH FACILITY

- located in SF207
- DEC GT44 Systems with
  - 1 PDP-11/40 CPU
  - 2 9-track dual density tape drives
  - 1 1000 cpm card reader
  - VT17 graphics display unit
  - 1 lab. peripheral system with A/D & D/A
  - 1 CVI 260 Video Bandwidth Compressor
- DEC GT40 System with
  - 1 PDP-11/10 CPU
  - 1 2314 tape disk drive
  - 1 VT12 graphic display unit
  - 9-track/800 BPI tape drive
  - 1 Calcomp microfilm plotter

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NOTE:

SF = Sandford Fleming
SG = 49 St. George
NP = McLennan Physical (New Physics)
SS = Sydney Smith
SRS= Student Record Services

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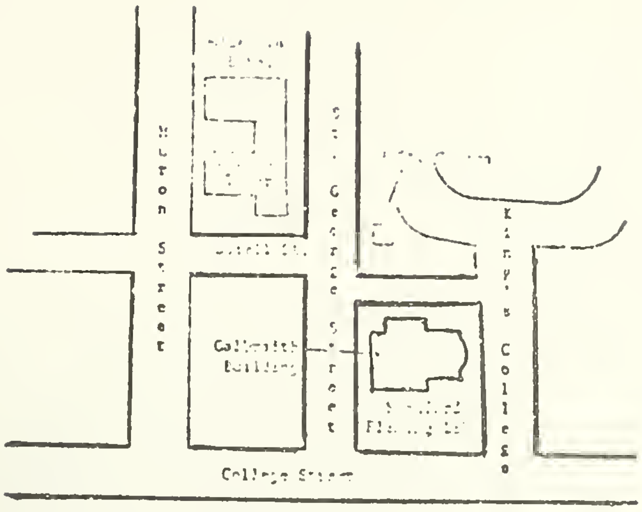
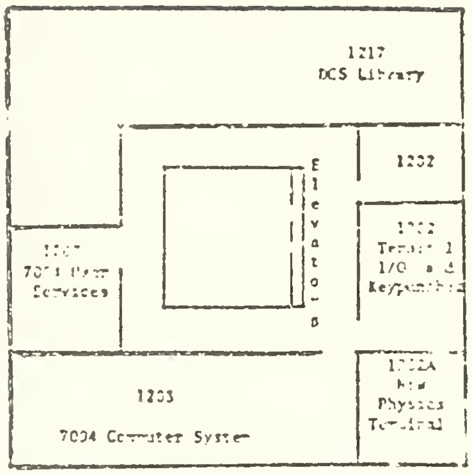
APRIL 1976





FLOOR PLAN: TWELFTH FLOOR, BURTON TOWER

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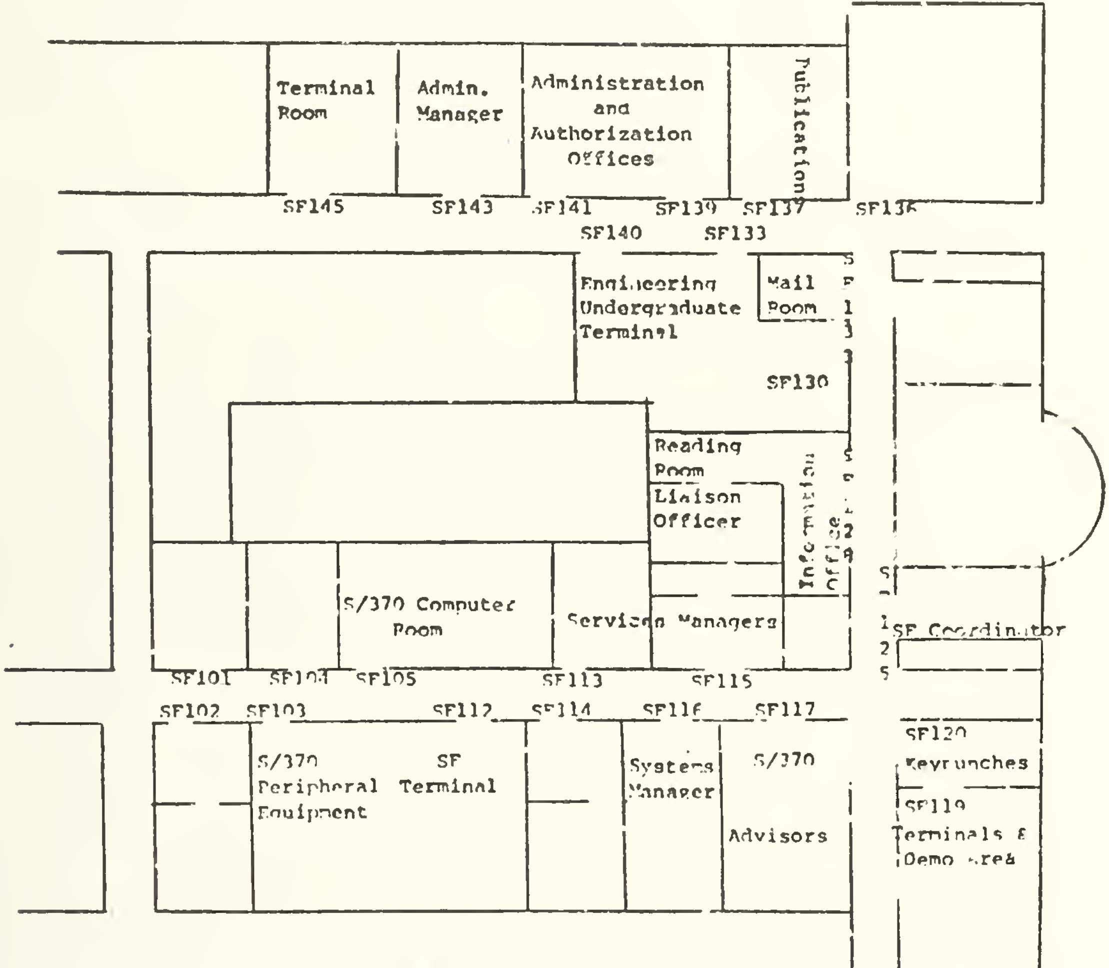
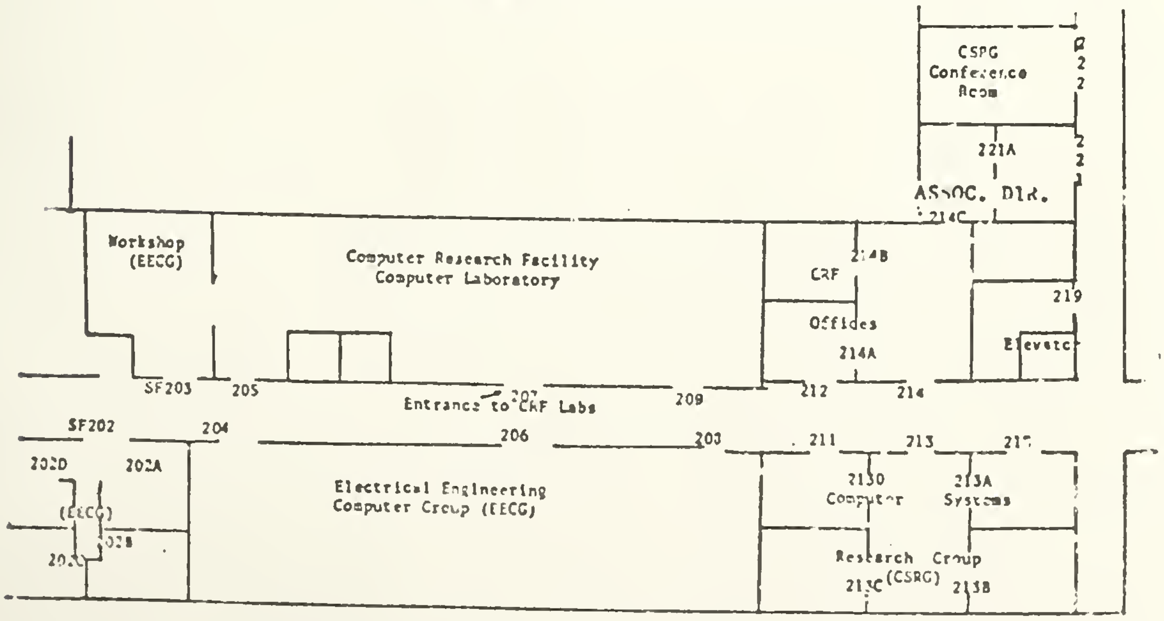


FLOOR PLAN: FIRST FLOOR, SANDFORD FLEMING LABORATORIES



FLOOR PLAN: SECOND FLOOR, SANDFORD FLEMING LABORATORIES

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